WHAT IS CLAIMED:

1. A packet-based voice communication device in a mobile communication system having a layered protocol architecture, comprising:

a W-PVCP (Wireless Packet Voice Convergence Protocol) layer for mapping a voice packet of variable length generated due to activation of voice traffic onto a packet frame of a fixed length; and

a MAC (Medium Access Control) layer and a physical layer for transmitting the mapped packet frame to a station on a channel.

2. The device of claim 1, wherein said W-PVCP layer is interconnected with a packet voice protocol over a wire network through an upper PPP (Point-to-Point Protocol) layer.

3. The device of claim 1, wherein said MAC layer operates in an active state and a control hold state.

4. The device of claim 1, wherein said physical layer operates in a normal state and a sleep state.

5. The device of claim 1, wherein said voice packet of a variable length includes:

a header area which has a section ID field indicating a logical channel number, a field indicating a first message, a frame sequence number field, a time stamp field indicating a voice packet generating time, a field indicating low priority blocks, and a noise field for generating noise in a mute period at a receiving side;

a length area representing the length of voice information;

a CRC (Cyclic Redundancy Code)/FEC (Forward Error Control) area for error correction of the header area;

a voice information area for low priority blocks that are dropped when errors occur; and

a non-droppable voice information area.

6. The device of claim 1, wherein said packet frame includes:

a subframe sequence area representing the sequence of the packet frame;

an information area for storing a divided voice packet;

a CRC area for error correction of the packet frame; and

a tail area indicating the termination of the packet frame.

7. The device of claim 6, wherein said CRC and tail areas are used by the physical layer.

8. The device of claim 1, further comprising timers in the MAC layer for state transition thresholds, wherein said timers are set according to an utterance period and a mute period of the voice traffic.

9. A packet-based voice communication device in a mobile communication system having protocol architecture comprising:

a physical layer and a MAC (Medium Access Control) layer for transmitting a voice packet received on a channel to a W-PVCP (Wireless Packet Voice Convergence Protocol) layer;

wherein said W-PVCP layer calculates a synchronization delay by utilizing a time stamp included in a first voice packet received from said MAC layer, buffers the subsequent voice packets for a predetermined time period based on the

synchronization delay, and transmits the buffered voice packets to a packet voice application.

10. The device of claim 9, wherein said W-PVCP layer detects a lost packet from sequence numbers of the voice packets received from the MAC layer and transmits a dummy slot instead of the lost packet to said packet voice application.

11. The device of claim 9, wherein said W-PVCP layer detects an arrival delay of the voice packet caused by a process delay in the physical layer or MAC layer and transmits a dummy slot for the time delay to the packet voice application.

12. A packet-based voice communication method in a mobile communication system, comprising the steps of:

assigning a packet voice channel upon generation of voice data, entering an active state, and transmitting packetized voice data on said packet voice channel;

releasing the assigned packet voice channel when there is no voice data to be transmitted for a predetermined time period, and entering an inactive state; and

re-entering the packet voice channel active state from the inactive state when a packet voice channel is assigned to transmit newly generated voice data.

13. The method of claim 12, wherein said packet voice channel is assigned by a 5ms control message of a MAC (Medium Access Control) layer.

14. A packet-based voice communication method in a mobile communication system having a layered protocol architecture, comprising the steps

of:

converting voice data generated by a packet voice application to packet data of a variable length upon activation of voice traffic;

mapping said packet data of a variable length to at least one packet frame of a fixed length by a W-PVCP (Wireless Packet Voice Convergence Protocol) layer;

passing said mapped packet frame to a MAC (Medium Access Control) layer; and

transmitting the mapped packet frame on a channel by a physical layer.

15. The method of claim 14, wherein said W-PVCP layer maps the packet voice data received over a wire network to said packet frame of a fixed length through an upper PPP layer.

16. The method of claim 14, wherein said MAC layer operates in an active state and a control hold state.

17. The method of claim 14, wherein said physical layer operates in a normal state and a sleep state.

18. A packet-based voice communication method in a mobile communication system having a layered protocol architecture, comprising the steps of:

passing a voice packet received on a channel to a W-PVCP (Wireless Packet Voice Convergence Protocol) layer by a MAC (Medium Access Control) layer;

calculating a synchronization delay by referring to a time stamp included in a first voice packet received from said MAC layer, buffering the following voice packets for a predetermined time period based on the synchronization delay, and

transmitting the buffered voice packets to a packet voice application by the W-PVCP layer.

19. The method of claim 18, wherein said W-PVCP layer detects a lost packet from the sequence numbers of the voice packets received from said MAC layer and transmits a dummy slot in place of the lost packet to the packet voice application.

20. The method of claim 18, wherein said W-PVCP layer detects an arrival delay of the voice packet caused by a process delay in a physical layer or said MAC layer and transmits a dummy slot for the time delay to the packet voice application.